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osmotic pressure can exist side by side without those of higher pressure draining those of lower, which, however, they would do as soon as their turgor was relaxed ever so slightly, thus releasing some of the osmotic energy that had previously been expended against the wall. This point has been often overlooked.

URSPRUNG[10] makes what he himself properly calls "a small contribution" (which nevertheless fills sixty-odd pages!) to a more extended study of the relation of live cells to the ascent of water in woody plants. His data will be more useful than his interpretation. The experiments, carried on in the forests, embraced five species of gymnosperms and fifteen of angiosperms. The axes were killed for greater or less distances at various levels by steam, and usually others were girdled at the same time. Microscopic examination was made of both dead portions and neighboring parts. URSPRUNG explains the dissimilar behavior of different species on the assumption (and therefore begs the question) that the experimental interference eliminates the vital component of the lifting forces, but does not affect the physical; so as the vital factor is greater or less the wilting of the leaves occurs in a few days in some experiments or is delayed to 100 in others. His "results" he summarizes thus: "In all the plants investigated a participation of the living cells in the production of the lifting force is to be assumed." (Is this a *result?*) "Water conduction occurs chiefly in the younger layers of the wood." (This has been long known.) "In all observed plants the cortex must be present in order to make possible the continuance of a sufficient water movement; its removal acts injuriously, though not everywhere equally. The significance of the cortex for the ascent of sap lies probably in its protective function for the periphery of the wood." (This has scarcely been doubted.) "For a sufficient water-movement a small fraction of the conducting tissues suffices, if in the part remaining the wood cells be living." (The *if* is not a condition proved but assumed.) "The force component arising from the living cells attains great significance in comparison with the purely physical." (*Quod est demonstrandum.*) —C. R. B.

Items of taxonomic interest.—C. B. CLARKE (Contrib. U. S. Nat. Herb. **10**:443–471. 1908), before his death, had prepared a synopsis (in Latin) of the Cyperaceae of Costa Rica. This has now been published, with such changes as were necessary, such as translation into English (by E. L. GREENE), rearrangement of synonymy, completion of citations, elimination of *nomina nuda*, etc. A synoptical key to the 19 genera precedes the presentation of the 105 species. The large genera are Rynchospora (16), Cyperus (15), Eleocharis (13), and Scleria (11), and a single new species is described in each of the following genera: Cyperus, Rynchospora, and Carex.—J. J. SMITH (Bull. Dept. Agric. Ind. Néerland. no. 13. pp. 78. *pls. 2.* 1907), in the first of a series of papers on the orchids of Java, has described 15 new species and 2 new genera (*Silvorchis* and *Lectandra*).—E. ULE (Notizblatt **5**: no. 41*a*. pp. 52. *pls. 4.* 1908), in connection with an account of the caoutchouc industry of Bahia, has described 3 new species of Manihot.—P. B. Kennedy (Muhlenbergia **4**:1–4. 1908) has described a new species of Dicoria from Nevada.—S. Sommier (Giorn. Bot. Ital. N. S. **14**:496–505. *pl. 14.* 1907) has described a new genus (*Melitella*) of Compositae (Cichoriaceae) from Malta.—R. Pampanini (*idem* 591–606), in describing a fascicle of new species, includes a Codonanthe from Brazil and a Sesbania from Central America (Mexico ?).—A. B. Rendle, E. G. Baker, and S. LeM. Moore (Jour. Linn. Soc. Bot. **38**:228–279. *pls. 16–19.* 1908), in an account of the Wollaston collection of plants from Mt. Ruwenzori (Africa), describe 34 new species, among which there is a new genus (*Choananthus*) of Amaryllidaceae.—A. D. E. Elmer (Leaflets Philipp. B **1**:212–219. 1907) has described 8 new species of Freycinetia from Lucban; also (*idem* 220–232) 11 new species of Leguminosae, including the new genus *Luzonia* (nearest Canavalia); and (*idem* 236–261) has presented 41 species and varieties of Ficus collected within a radius of three miles of Lucban (Luzon), including 6 new species.—E. B. Copeland (*idem* 233–235) has described 3 new species of ferns from the Philippines.—J. H. Barnhart (Bull. Torr. Bot. Club **34**:579–582. *pl. 34.* 1907) has described a new Utricularia from Long Isand.—J. C. Arthur (*idem* 583–592), in his sixth fascicle of new Uredineae, describes 15 new species.—K. K. Mackenzie (*idem* 603–607), has described 4 new species of Carex.—H. Rehm (Annales Mycol. **5**:516–546. 1907), in describing 95 new species of Ascomycetes from various parts of the world, includes 18 from North America and 38 from South America.—In publishing the third fascicle of Weberbauer's new plants from the Andes (Bot. Jahrb. **40**:225–395. 1908), 264 new species are described, including the following new genera: *Urbanodoxa* and *Englerocharis* (Cruciferae), by R. Muscher; *Urbanosciadium* (Umbelliferae), by H. Wolff; and *Acrobotrys* (Rubiaceae), by K. Schumann and K. Krause.—R. Pilger (*idem* 396, 397) has described a new genus (*Glischrothamnus*) of Aizoaceae from Brazil.—R. Schlechter (Bot. Jahrb. Beibl. **40**^{3}:1–19. 1908), in describing 36 new Asclepiadaceae from the East Indies, includes the new genera *Oistonema* and *Anatropanthus;* the same author (*idem* 20–45) describes 54 new species from New Caledonia, and includes four new genera (*Dolichanthera*, *Rhopalobrachium*, *Atractocarpus*, *Bonatia*) of Rubiaceae.—C. C. Hosseus (Bot. Jahrb. **41**:55–61. *pls. 1, 2.* 1908) has described a new genus (*Richthofenia*) of Rafflesiaceae from Siam; he has also published (*idem* 62–73) a list of 55 species of Acanthaceae from Siam, including 12 new species.—E. Koehne (*idem* 74–110) has supplemented his account of Lythraceae in Engler's *Pflanzenreich* (1903) by intercalating species published since that date, many of them American (chiefly Mexican), and by adding 16 new species published here for the first time.—N. L. Britton and J. N. Rose (Smithson. Misc. Coll. **50**:503–539. 1908) have published a preliminary account of the Opuntioideae of North America, recognizing 143 species of Opuntia (15 of which are new), 6 of Nopalea, and 11 of Pereskiopsis, a genus recently published in the same serial (331–333).—J. M. C.

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[10] URSPRUNG, A., Abtötungs- und Ringelungsversuche an einigen Holzpflanze. Jahrb. Wiss. Bot. **44**:287–349. *pl. 4.* 1907.

The individuality of the chromosome.—By subjecting root tips of *Pisum sativum* to a 0.75 per cent. solution of chloral hydrate at 20° C. for one hour,